

Rec'd PCT/PTO 25 APR 2001

Form PTO-1390

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

P20684

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/807445

INTERNATIONAL APPLICATION NO.

PCT/CH99/00498

INTERNATIONAL FILING DATE

21 October 1999

PRIORITY DATE CLAIMED

26 October 1998

TITLE OF INVENTION

DEVICE FOR ENTERING VALUES USING A DISPLAY SCREEN

APPLICANT(S) FOR DO/EO/US

Martin VOGEL and René WUSSLER

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information.

1. ☒ This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)).
4. ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371 (c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☒ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (U.S.C. 371(c)(5)).

Items 11 to 16 below concern other document(s) or information included:

11. Assignee: STUDER PROFESSIONAL AUDIO AG of Regensdorf, SWITZERLAND
12. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
13. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
14. ☒ A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☒ Figure of Drawing to be published
18. ☒ Other items or information:  
Cover Sheet and International Application as published in German.  
Cover Letter Submitting Amended Pages of Application.  
PCT/IPEA/416(in German).  
PCT/IPEA/409-with two sheets of modified pages(in German).  
Two Sheets of Modified Pages.  
PCT/ISA/210(in English and German).  
Cover Letter under 35 USC 371 and 1.495.  
Claim of Priority.

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/807445

INTERNATIONAL APPLICATION NO.

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ATTORNEY'S DOCKET NUMBER

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19. The following fees are submitted:

Basic National Fee (37 CFR 1.492(a)(1)-(5)):

Search report has been prepared by the EPO or JPO. . . . . \$ 860.00

International preliminary examination fee paid to USPTO (37 CFR 1.482). . . . . \$ 690.00

No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO(37 CFR 1.445(a)(2)). . . . . \$ 710.00

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO. . . . . \$1,000.00

International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4). . . . . \$ 100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

\$860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than 20 30 months from the earliest claimed priority date (37 CFR 1.492(e)).

\$

Claims

Number Filed

Number Extra

RATE

Total Claims

10

- 20 =

0

X \$18.00

\$0.00

Independent Claims

1

- 3 =

0

X \$80.00

\$0.00

Multiple dependent claim(s) (if applicable)

+ \$270.00

\$0.00

TOTAL OF ABOVE CALCULATIONS =

\$860.00

Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.

\$

SUBTOTAL =

\$860.00

Processing fee of \$130.00 for furnishing the English translation later than 20 30 months from the earliest claimed priority date (37 CFR 1.492(f)).

+

Extension of Time fee in the amount of \$

TOTAL NATIONAL FEE =

\$860.00

Fee for recording the enclosed assignment (37 CFR 1.21(h). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property

+

TOTAL FEES ENCLOSED =

\$860.00

Amount to be refunded

\$

Charged

\$

a. ☒ A check in the amount of \$860.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$\_\_\_\_\_ to cover the above fees.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 19-0089.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO CUSTOMER NO. 7055

AT THE PRESENT ADDRESS OF:

Neil F. Greenblum

GREENBLUM &amp; BERNSTEIN, P.L.C.

1941 Roland Clarke Place

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SIGNATURE

Neil F. Greenblum

NAME

28,394

REGISTRATION NUMBER

09/807445

P20684.P03

JC08 Rec'd PCT/PTO 25 APR 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant :M. VOGEL et al.

Serial No. : Not Yet Assigned

PCT Branch

Filed :October 21, 1998

PCT/CH99/00498

For :DEVICE FOR ENTERING VALUES WITH A DISPLAY SCREEN

**CLAIM OF PRIORITY**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Sir:

Applicant hereby claims the right of priority granted pursuant to 35 U.S.C. 119 based upon Swiss Application No.2153/98, filed October 26, 1998. The International Bureau already should have sent a certified copy of the Swiss application to the United States designated office. If the certified copy has not arrived, please contact the undersigned.

Respectfully submitted,  
M. VOGEL et al.

Neil F. Greenblum  
Reg. No. 28,394

April 24, 2001  
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09/807445

P20684.A01

JCO8 Rec'd PCT/PTO 25 APR 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Martin VOGEL et al. )  
 )  
Appln. No. : Not yet assigned (U.S. National ) **Applications Branch**  
Stage of PCT/CH99/00498 )  
 )  
Filed : October 21, 1998 )  
 )  
For : DEVICE FOR ENTERING VALUES )  
WITH A DISPLAY SCREEN )

**PRELIMINARY AMENDMENT AND COVER LETTER  
SUBMITTING AMENDED PAGES OF APPLICATION**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

Enclosed please find a copy of the International Preliminary Examination Report - Form PCT/IPEA/409 (hereinafter "Report"), which was drawn on pages of description 1 - 9 and the drawings as originally filed, and claims 1 - 10 as filed on October 18, 2000, and which includes, as an Annex, pages containing amended claims 1 - 10 (in German). Also enclosed is an English language translation of the Annex, i.e., amended claims 1 - 10, each of which are identified for the convenience of the Examiner as "Modified Sheet."

Based upon the submission of the English translation of amended claims 1 - 10, Applicants respectfully request examination on the merits of the application containing pages of description 1 - 9 and the drawings, as originally filed, and amended claims 1 - 10

P20684.A01


submitted on October 18, 2000 (in place of originally filed claims 1 - 10).

REMARKS

Entry of the foregoing replacement sheets upon which the International Preliminary Examination Report is based is respectfully requested, as is examination on the merits of the application including these replacement sheets.

Should there be any questions, the Examiner is invited to contact the undersigned at the below listed number.

Respectfully submitted,  
Martin VOGEL et al.

  
Neil F. Greenblum  
Reg. No. 28,394 *AB 35, 013*

April 24, 2001  
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09/807445

P20684.P02

JG08 Rec'd PCT/PTO 25 APR 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant :M. VOGEL et al.

Serial No :Not Yet Assigned  
(U.S. National Phase of PCT/CH99/00498)

Filed :October 21, 1998

For :DEVICE FOR ENTERING VALUES WITH A DISPLAY SCREEN

**COVER LETTER ACCOMPANYING U.S. NATIONAL STAGE PATENT  
APPLICATION FILED UNDER 35 U.S.C. 371  
AND 37 C.F.R. 1.495**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

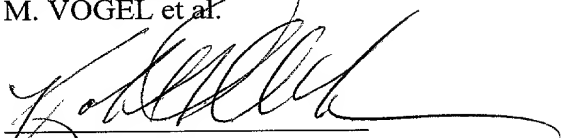
Enclosed is a new National Stage patent application for filing in the U.S. Patent and Trademark Office under 35 U.S.C. 371 and 37 C.F.R. 1.495. The Declaration and Power of Attorney attached thereto are in unexecuted form. A properly executed Declaration and Power of Attorney will be filed within the period of time set in a Notification to be mailed by the United States Patent and Trademark Office.

Related to this, a correspondence address is provided in  
the unexecuted Declaration and Power of Attorney, and is as follows:

GREENBLUM & BERNSTEIN, P.L.C.  
1941 Roland Clarke Place  
Reston, Va. 20191

If there any questions pertaining to this National Stage Application, the please contact the undersigned below.

Respectfully submitted,  
M. VOGEL et al.

  
Neil F. Greenblum  
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April 24, 2001  
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**Device for Entering Values with a Display Screen**

The invention relates to a device for entering values with a screen for displaying values and with at least one element for manual entry of the values provided in front of the screen.

Devices for the input of values are, e.g., rotating knobs and sliding levers that are connected to a dial from which the adjusted value can be read. Here, the feedback about the adjusted value is quickly recognizable and easy to survey. Such systems are well introduced and require little space. Unfortunately, however, they cannot be configured, i.e., they cannot easily and quickly be reassigned to another task. Nor can they be operated by remote control. This disadvantage can be avoided by connecting a motor which moves the rotating knob or sliding lever. Such devices are known, but are expensive and large.

In a further developmental stage, the device for entering can be separated from the display so that the rotating knob or the sliding lever and the display screen, which can also be embodied as a monitor, are locally separated. Such a device can be configured and controlled remotely. However, the operation is less advantageous since, if several such devices are provided in a tight area, the coordination between the entering element and the display element must be known or practiced. Frequently, the elements for the entering of values are locally separated so far from the display of the values that a correlation between the element and the display is not always ensured. Frequently, so many entry elements are provided that confusion is inevitable. For such types of devices, audio mixers are typical for sound signals, control panels for power plants or chemical arrangements, as well as operating surfaces for devices for medicinal technology, etc.

Another known embodiment for such devices with a screen is known from the technology of electronic computers, so-called PC's. Here, an arrow can be directed onto a field on the screen by means of a so-called mouse where, e.g., a value can be selected



from a given selection of values. Or, originating from a given value, the next given value can be selected by an impulse from the mouse. Such an embodiment can be configured and controlled remotely, but it is comparatively slow in its operation. The lack of a directly acting entering knob leads to an awkward operation. The simultaneous operation of several entering devices is impossible.

Furthermore, devices with screens are known in which the display and value entering occur directly via the screen, i.e., operate without a mouse. On such screens, the program separates fields which, e.g., are to be touched by the finger in order to select one value among several values. Such systems are known by the term "touch screen." They are easy to arrange and configure, and are quicker to operate than a mouse. However, each entry field on the screen requires a lot of space. The operation is perceived as uncomfortable when the operating finger of the hand has to perform a continuous, pushing motion, directed away from the body.

From US 5,572,239, a device is known with control elements, e.g., rotating or sliding knobs being provided in front of a flat screen, which are connected to a transformer via a connecting element, such as a shaft, e.g., which transforms a motion or position of the control element into an electric signal. The transformer is mounted onto a carrier so that ultimately the control elements are positioned on this carrier as well. The carrier is positioned behind the flat screen, viewed in the viewing direction, and the connection to the control elements occurs via openings in the flat screen.

Therefore, in this known device, control elements are positioned in front of the screen and transformers behind the screen that convert the settings of the control elements. This is always contingent upon the connection being made via the screen, i.e., no monitor containing a cathode ray tube can be used. Another disadvantage can be seen in that, by the utilization of control elements and separate transformers, an overall large amount of space is necessary, and the construction of such devices is expensive, in particular the application in an audio mixer.

Therefore, it is the object of the invention, on the one hand, to create a device of the above-mentioned type which allows a secure, i.e., reliable and confusion-free, but also quick feedback about values, which can be entered in an ergonomically advantageous manner by means of a manual entry element and, on the other hand, lead to a constructive design that requires little space and can easily be constructed.

For this purpose, a carrier for the elements for manual entering is positioned in front of the screen, as seen in the viewing direction, in the device according to the invention. Insofar as the carrier covers the entire screen, it is provided with at least one transparent region correlated to the element for the display of values on the screen. The elements are connected by way of connections in front of the screen to the computer which enters the setting of the elements for the manual entering of data and, in at least one region of the screen, a feedback of the adjusted values is displayed. Preferably, an element for mounting electronic components is correlated to the screen and the carrier. The element for mounting electronic components is preferably positioned between the carrier and the screen and, depending on the configuration, is provided with transparent regions at least whenever it covers the entire screen. It can be positioned directly at the carrier as well (e.g., applied as a foil) or be integrated therein. For example, rotating knobs, sliding levers, so-called joy-sticks, etc., i.e., sensors that are adjustable linearly or in two dimensions or directions can be used as entry elements. Such entry elements produce either a value according to their present setting or produce a signal which corresponds to a performed movement and produce increments of processing values, for instance.

The advantages achieved by the invention can be seen in particular in the ability to provide a clear and secure feedback to the operator on recently adjusted values. The frequently present spacial and therefore visual distance as well between the position in which the display occurs on a screen and the position in which a value entering occurs is reduced such that both elements are moved into the same view for display and operation. Thus, depending on the configuration, several displays and several entry

elements can be set into the same view so that, e.g., values can be changed simultaneously with both hands and immediately the valid values can be controlled for both entries simultaneously. Additionally, the device according to the invention allows the entering of values in quick sequences and is particularly "handy" or advantageous for operating with hands. When used in audio mixers for sound technology, it adapts to the habits of the sound masters to a large extent and thus supports their work in a positive manner. Due to the control elements being directly connected to the computer via cables and the wires being mounted directly on the screen, a particularly simple construction results demanding little space as well.

In the following, the invention is explained using an exemplary embodiment and figures. They show:

- Fig. 1            a representation of a device according to prior art
- Fig. 2            a section of a part of the device
- Figs. 3 and 4    a section each through another embodiment of a part of the device
- Fig. 5            a view of the device
- Fig. 6            a detailed view of the device and
- Fig. 7            a schematic block of the construction of the device with a computer.

Fig. 1 shows a known embodiment of a device comprising a screen 1 and several fields 2, 3 etc. in which a value is displayed graphically, e.g., in the form of numbers. These two fields 2, 3 are correlated to rotating knobs 4, 5, e.g., by way of which values can be entered into the device. The displayed values in the fields 2, 3 can be modified by rotating the rotating knobs 4, 5. For this purpose, however, it must be known that the fields 2, 3 correspond to the rotating knobs 4, 5 and not to the rotating knobs 6, 7 which could be conceivable as well. In reality, the distance between the fields 2, 3 and the rotating knobs 4, 5, 6, 7, as well as the number of the rotating knobs present can be much larger than shown here, which increases the insecurity during operation.

Fig. 2 shows a section through a part of the device according to the invention. Here, a part of the screen 10, a part of the element 11 for mounting electronic components, and a part of a carrier 12 for elements for entering values are discernible. Here, the element 11 is typically embodied as a printed circuit board on which strip conductors are mounted, here, in particular, an optically operating sensor 13. In this example, the sensor 13 cooperates with a belt 14 which rests on rolls 15, 16 which are positioned in the carrier 12 via the axes 17 and 18. The belt 14 comprises at least one marking initiating an electrical impulse when it is positioned opposite to the sensor 13. In order to enter values, the belt 14 can be moved on its upper side 19, using a finger, for instance. Here, a linear adjustable activator is used. The activator 12 is constructed of a transparent medium such as, for example, glass, plexiglass, mineral glass, etc. and the element 11, cut out in certain regions next to the belt, is clear or not present. The carrier 12 can, e.g., be mounted on a cover sheet for the screen or on a common housing part. An incremental activator is conceivable for the sensor 13, for instance.

In order to enter values, the belt 14 is driven, on its upper side 19 by a finger, for example, and is shifted into a new position with markings on the belt 14 causing impulses in the sensor 13 that are processed into values in a processing unit in a manner that is known per se and therefore not described in detail here. These values are displayed in a region or field by the screen 10, which is next to the belt 14.

Fig. 3 shows another embodiment of the device having a rotating knob 20 as the entry element. Here, in contrast to Fig. 2, another (optical) element, a so-called touch screen, is provided as the screen 22. The rotating knob 20 is positioned in a pivotable manner on the carrier 21 which is positioned in front of the screen 22 and of which only a part is discernible. Between the screen 22 and the carrier 21, an element 23 is provided for mounting electronic components, such as strip conductors, and mounted on one of them. Here, a sensor 24 is mounted via contacts 25, 26 as well. Thus, the carrier 21 is provided with an recess 27. Additional recesses, not shown here, clear the screen. On the carrier 21, a bearing 28 for the rotating knob 20 is mounted via at least one bolted connection 29, as well. On the rotating knob 20, a disc provided with a code is mounted

which is in visual contact to an optically operating sensor 24. The construction elements of the company Hewlett-Packard, Type HEDR 8000, for example, are suitable as the sensor 24.

It is also conceivable to position the sensor and the wires leading to it directly on the surface of the carrier and covered by the rotating knob.

For the purpose of entering values, the rotating knob 20 is rotated by hand with the disc 30 following and causing an impulse in the optical sensor 24, which processes the value unit into values in a manner that is known per se and thus is not described in detail here. These values are displayed by the screen 22 in the region or field that is next to the rotating knob 20.

Fig. 4 shows another possible embodiment with the screen 32, here a touch-screen, being mounted with its side wall 31 immediately next to the carrier 33.

According to the invention, sensors can also be used that do not operate optically but use other physical effects such as magnetism, ultrasound, etc.

Fig. 5 shows a view of a device according to the invention viewed in the direction towards a screen 34 with regions 35', 36', 37', etc. for displaying adjusted values and rotating knobs 35, 36, 37, etc. being elements for entering values which are assigned to a carrier 42. In addition to the mentioned entry elements, other entry elements, known per se, 38, 39 of a different type can be provided on the same screen, operating with the "touch screen" principle or being activated by means of a mouse. In general, the carrier 42 can be embodied transparently so that the screen 34, positioned therebehind, is visible in all parts not covered by the rotating knobs 35, 36, 37. However, additional regions 40, 41 of the carrier 42 may be covered by strip conductors, e.g., which are positioned above or below the carrier 42 or are provided as foils or are embodied as thin or thick layers. In these additional regions 40; 41 that may cover the screen in a web-like fashion, connecting all rotating knobs, the screen 34 is covered and therefore not visible.

The device according to the invention is particularly advantageous in so-called LCD screens. They are advantageously provided with an even surface and reflect regions always in the very same size, once their regions are defined by a program. For instance, a dial is always displayed in the same size and at the same position. LED screens are very easily integrated in a horizontal position and form a part of an audio mixer for sound signals, for instance.

Fig. 6 shows an example of data that may occur in an audio mixer in the regions 35', 36', or 37'. Here, these data are values for an audio-channel for processing signals, for example. 43 identifies a graphic value display with regional specifications 44 and 45. A display concerning a control mode is provided in 46, indicating whether the control occurs automatically or manually. The absolute value of a parameter is indicated in 47 and the measuring unit used in 48. In other places, the name of the parameter set is named in 49, the name of the parameter in 50, and another supplementary display in 51. Additionally, the background color 52 may indicate a parameter identification, a level of alarm, etc.

Fig. 7 shows a block wiring diagram of the device according to the invention, here, the conditions for application in an audio mixer are taken into close consideration, by way of example. An operating surface 53 should be provided with a variety of adjustment elements and display elements such as dials, lamps, etc. as customary in such audio mixers. This operating surface consists of a carrier 54 for operating elements 55 which serve the configuration of the audio mixer, an operating element 56 which serves to influence parameters important for the processing of audio signals, and one or more screens 57 serving to display values, dials, functions, etc. The graphic computer is connected to the screen as well. A computer 62 is connected to the operating surface 53 via one data bus 59, 60, and 61 each. Here, the data bus 59 transmits data or commands relating to the configuration of the audio mixer or its changes from the operating elements 55 to the computer 62. The data bus 60 provides the computer 62 with new values from the operating elements 55 concerning the parameters for processing the audio

signals or the algorithms used. The data bus 61 transmits data relating to the present state of the audio mixer and the audio signals from the computer 62 to the graphic computer 58 and, thus, to the screen 57. The computer 62 is also connected to a signal processor 64 via a data bus 63 and a bus 71, which processor modifies, mixes, etc. the primary audio signals. Thus, it is provided with several entrances 65 and exits 66 for audio signals. The signal processor 64 comprises the primary core of an audio mixer, e.g., operating digitally and thus known per se and not shown here. An algorithm library 67 is assigned to the signal processor 64, having saved all algorithms used in the processing of the signals from the entries 65. This library is connected to the signal processor 64 via a bus 69 and to the computer 62 via a bus 68.

In an audio mixer of a known type, the operating surface 53 is connected directly to the process computer 64 via suitable means so that the operating elements 55, 56 can directly influence the processing of the signals for the exits 66. In order to create additional possibilities according to the invention for operating such an audio mixer, a computer 62 is connected between the operating surface 53 and the process computer 64 which protocols the state, i.e., all settings of the audio mixer and the signals pertaining thereto. When the configuration of the switch board is changed by the operating elements 55, it occurs by means of corresponding data using the data bus 59 to cause the computer 62, on the one hand, to select new algorithms via the bus 68 from the algorithm library 67 and to put them out to the signal processor 64 and, on the other hand, to direct the graphic computer 58 via the data bus 61 to adjust the displays, dials etc. on the screen 57 to the new configuration. The term configuration defines the entire arrangement provided for the processing of the audio signals. It can be represented in a block wiring diagram, for instance, which lists all processes, such as increases, additions of signals, filters, lever changes, etc. Such a block wiring diagram, being precisely equivalent to a configuration, can be modified by changes of the configuration so that a different block wiring diagram is valid for the processing, etc. If the operating elements 56 are activated, however, the configuration (the block wiring diagram) remains unchanged and only the values of the parameters in the selected parameters are changed, transmitted by way of the bus 71 to

the signal processor 64 and are displayed on the screen 57 via the graphic computer 58 as well. This way, such values can be modified as depicted, e.g., in Fig. 6. Assuming the rotating knob 70 serves to provide a filter with a frequency limit, this limit is modified by rotating the rotating knob 70 and its values are displayed in 47. Additionally, it is discernible which channel was effected by this modification, etc.

Therefore, the computer 62 serves to acquire the state of signal paths, lever positions, filters, the dynamic of modifying processors, and the size of signals, the position and the change of the position of entering elements, etc. and to display them on the screen 57 in a suitable fashion. Additionally, it gives control commands to the signal processor 64 for processing audio and video signals. The user is also guided through this permanently updated display by making it discernible which modifications in different levels were caused by his intervention into the existing settings. For example, a modification of the frequency limit of a filter component causes not only the display of the new frequency limit but additionally the updated display of other values dependent on it, such as the lever, etc.

The operating elements 55 represent means for defining the signal flux in the audio channels by selecting the algorithms. In the computer 62, stored program parts define means for determining the assignment of operating elements, for instance, in the meaning that a line or column of rotating knobs on the audio mixer serves to adjust equal parameters, with other parameters being influenced by elements of other lines or columns. This can also mean that singular operation elements can be blocked in a configuration and cannot cause any effect or that several parameters can be modified by a single operation element, e.g., by means of a serial approach. It can simply mean that the language of the labeling can be adjusted at the 49th position etc. or that in some sections of the display the color can be modified rhythmically or can be changed.



### Claims

1. Device for entering values having a screen (34, 57) for displaying the values and having at least one element (35, 36, 37, 55, 56) for manually entering the values being provided in front of the screen, characterized in that a carrier (42) for elements 35, 36, 37, 55, 56) for manual entry is positioned in front of the screen in the viewing direction and the elements are connected via connections in front of the screen to a computer (52), which acquires via data the position of the elements for manual entry and which displays a feedback concerning the adjusted values in at least one region (35', 36', 37') on the screen.
2. Device according to claim 1, characterized in that the carrier (42) is provided with transparent regions (35', 36', 37') assigned to the elements (35, 36, 37).
3. Device according to claim 1, characterized in that the computer (52) is connected to a signal processor (64) which receives signals via entrances (65), which signals are processed according to the adjusted values with the computer determining the configuration for the processing in the signal processor.
4. Device according to claim 1, characterized in that an element (11) for mounting electronic components is assigned to the screen and the carrier, positioned between the carrier and the screen for mounting electronic components.
5. Device according to claim 3, characterized in that the element for mounting electronic components is positioned on the carrier.
6. Device according to claim 1, characterized in that shaft encoders (23) are provided as entry elements.

7. Device according to claim 1, characterized in that linearly adjustable transmitters (14) are provided as entry elements.
8. Device according to claim 1, characterized in that transmitters adjustable in two dimensions are provided as entry elements.
9. Device according to claim 1, characterized in that the screen is provided with additional entry elements (38, 39) of different types.
10. Device according to claim 1, characterized in that the computer (62) acquires the state of elements such as signal paths, lever positions, filters, the dynamic changing processors, the size of signals, the position and the variation of the position of entry elements, etc. via displays in the regions (35' 36' 37') on the screen and displays them in an appropriate fashion on the screen (57).

Claims

1. Device for entering values for processing of audio signals in a signal processor (64) with a screen (34, 57) for displaying the values, with at least two elements (35, 36, 37, 55, 56) for manually entering the values being provided in front of the screen, having a carrier (42) for elements (35, 36, 37, 55, 56) for manual entry, which is positioned in front of the screen in the viewing direction and the elements are connected via connections in front of the screen to a computer (62), that acquires the position of the elements for manual entry using data and which displays a feedback concerning the adjusted values in at least one field (35', 36', 37') on the screen, characterized in that the computer (62) is connected to a signal processor (64) for the processing of audio signals such that the computer can transmit control commands to the signal processor for processing the audio signals according to the settings of the manual entry elements.
2. Device according to claim 1, characterized in that the carrier (42) is provided with transparent regions (35', 36', 37') assigned to the elements (35, 36, 37).
3. Device according to claim 1, characterized in that the computer determines the configuration for the processing of the audio signals in the signal processor.
4. Device according to claim 1, characterized in that an element (11) for mounting electronic components is assigned to the screen and the carrier, positioned between the carrier and the screen for mounting electronic components.
5. Device according to claim 3, characterized in that the element for mounting electronic components is positioned on the carrier.
6. Device according to claim 1, characterized in that shaft encoders (23) are provided as entry elements.

7. Device according to claim 1, characterized in that linearly adjustable transmitters (14) are provided as an entry element.
8. Device according to claim 1, characterized in that the computer (62) is connected to operating elements (55) which determine the configuration of the device.
9. Device according to claim 1, characterized in that the screen is provided with additional entry elements (38, 39) of different types.
10. Device according to claim 1, characterized in that the computer (62) acquires the state of elements such as signal paths, lever positions, filters, the dynamic changing processors, the size of signals, the position and the variation of the position of entry elements, etc. via signals in the regions (35' 36' 37') on the screen and displays them on the screen (57) in an appropriate fashion.



Fig. 3

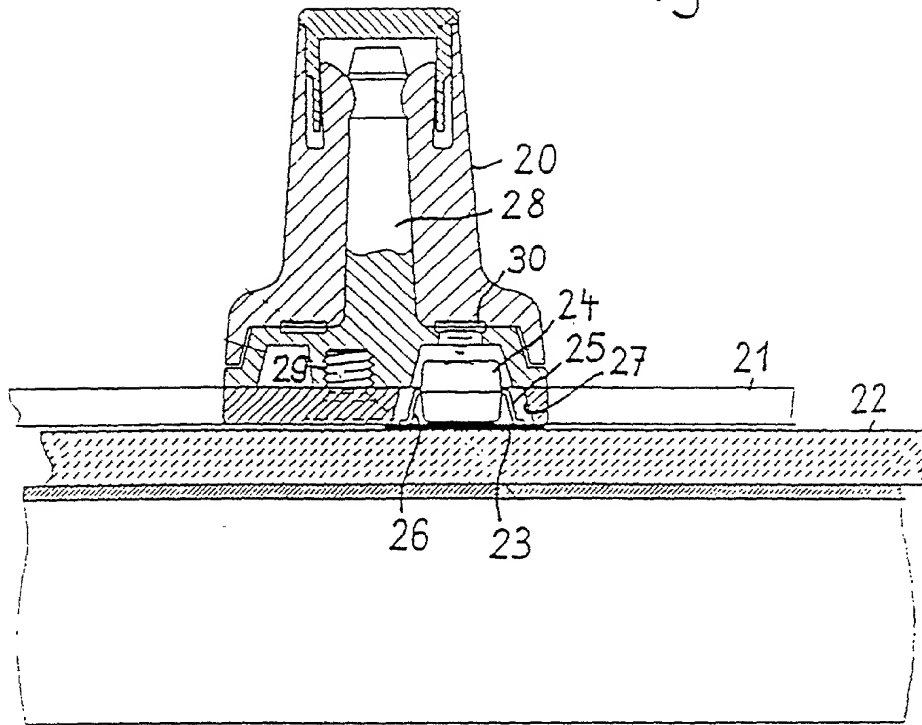
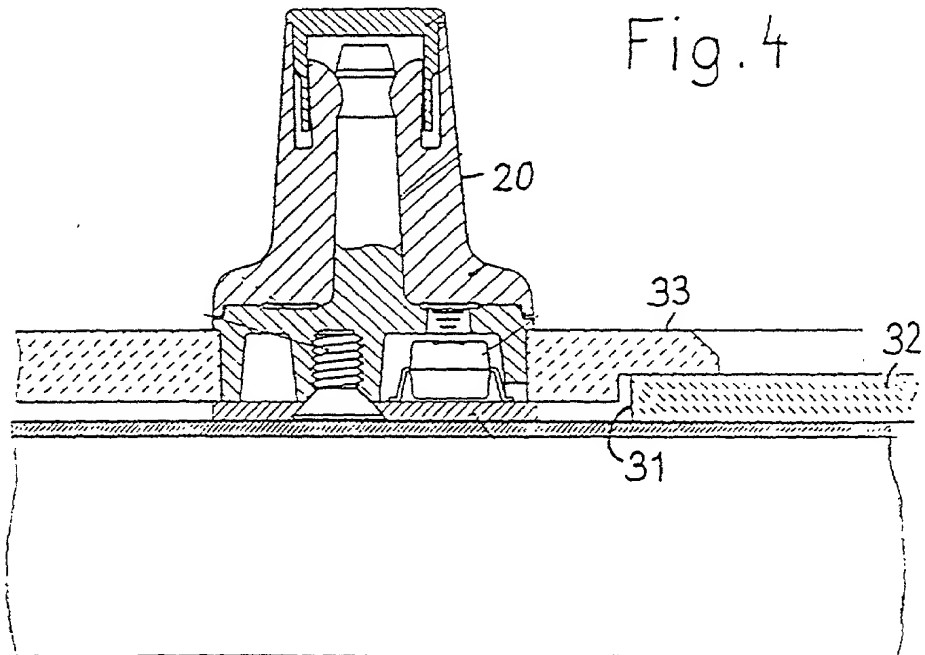


Fig. 4



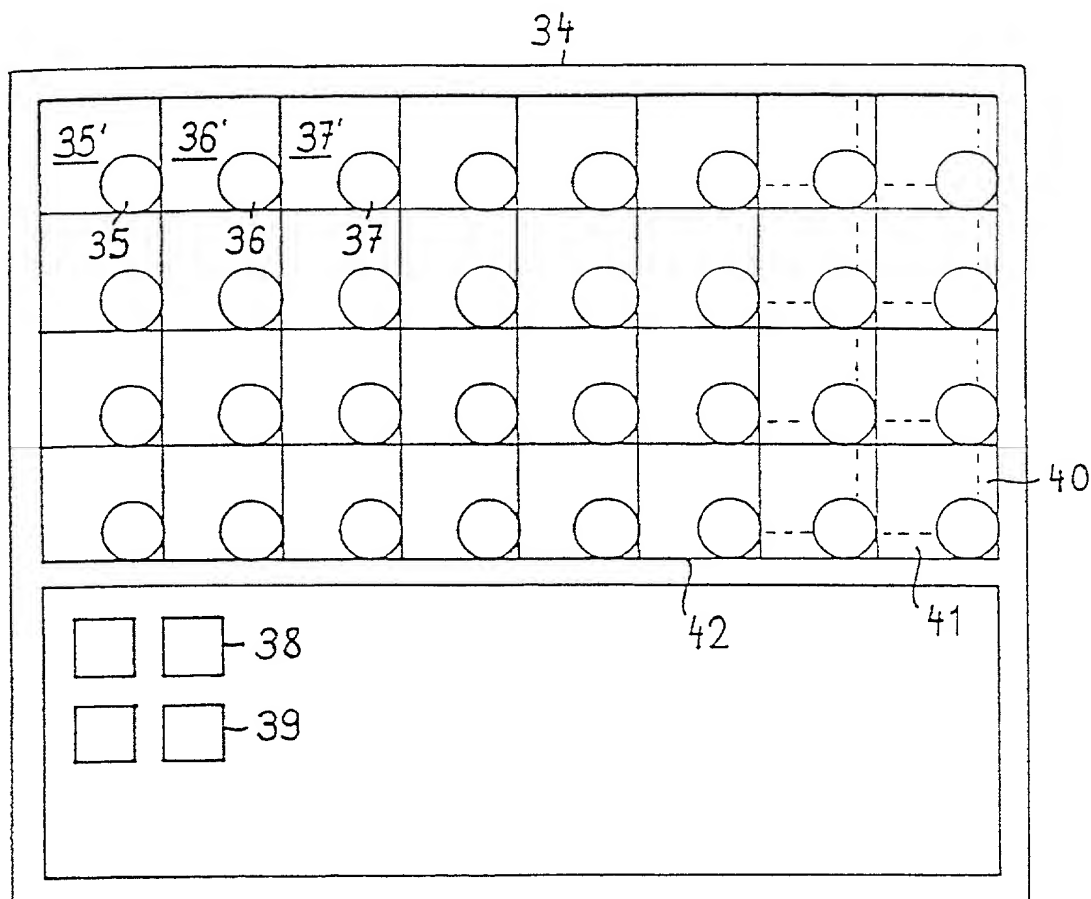


Fig. 5

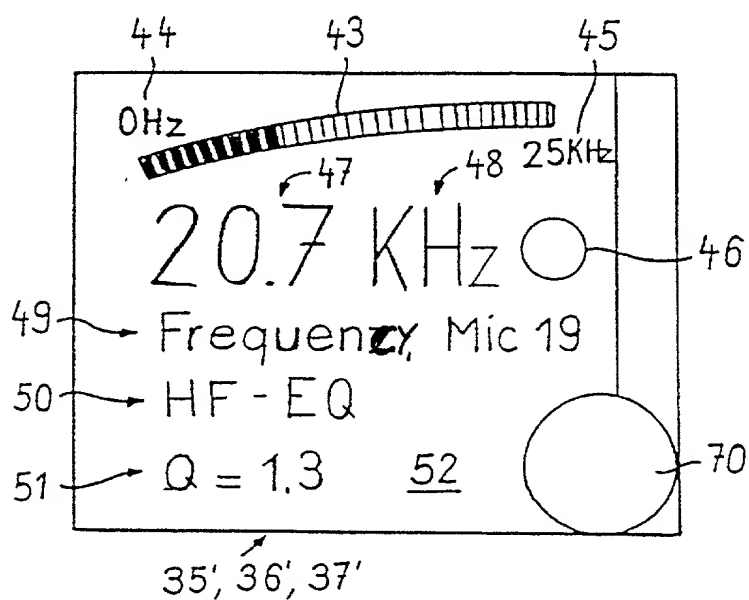


Fig. 6

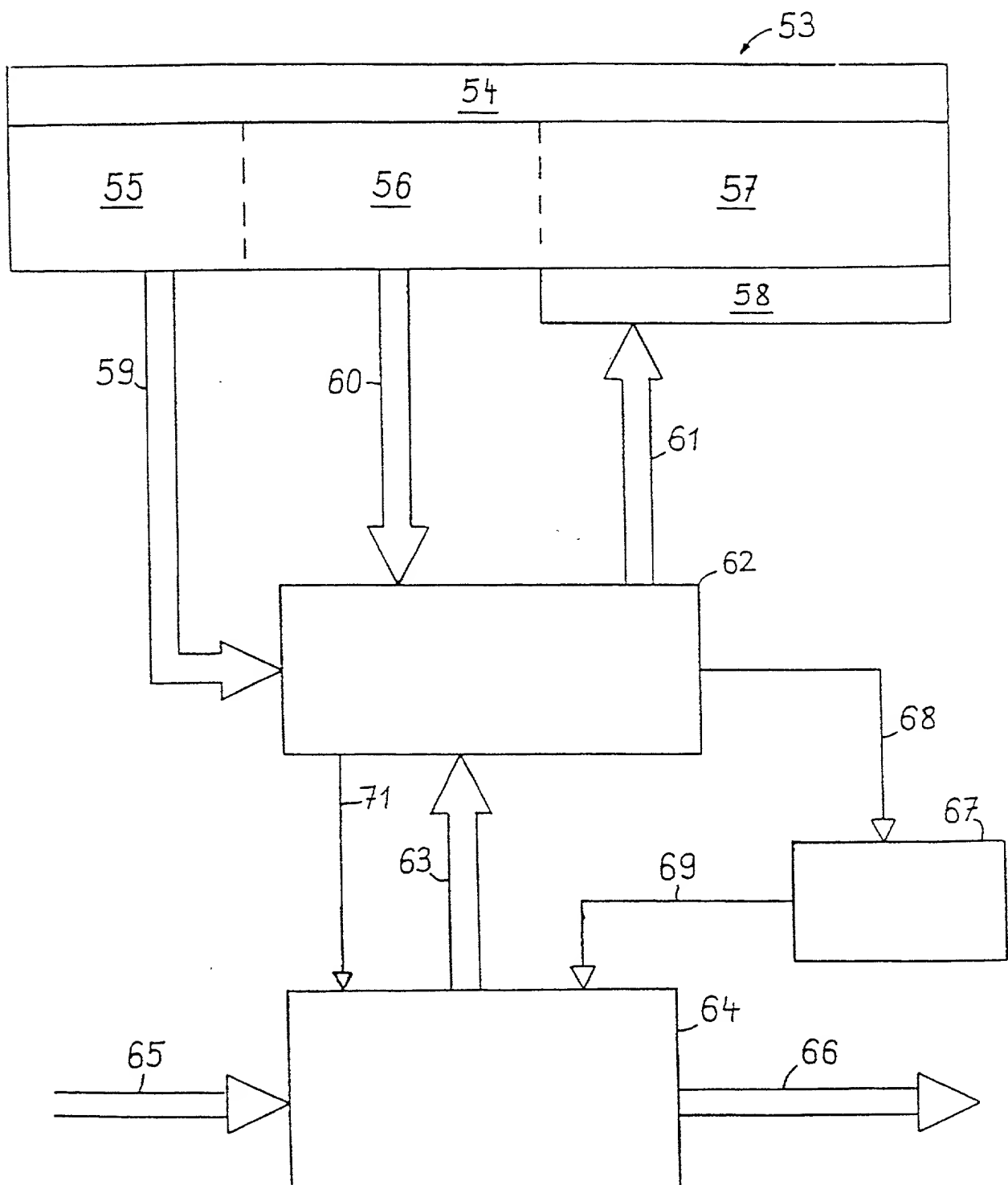


Fig. 7



# Declaration and Power of Attorney For Utility or Design Patent Application

Erklärung für Patentanmeldungen zur Gebrauchseignung und Entwicklung  
mit Vollmacht

## German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides  
Statt:

daß mein Wohnsitz, meine Postanschrift und meine Staats-  
angehörigkeit den im nachstehenden nach meinem Namen  
aufgeführten Angaben entsprechen, daß ich nach bestem Wissen der  
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Gegenstandes bin, für den dieser Antrag gestellt wird und für den  
ein Patent für die Erfindung mit folgendem Titel beantragt wird:  
VORRICHTUNG ZUR EINGABE VON WERTEN MIT EINEM  
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deren Beschreibung hier beigelegt ist, es sei denn (in diesem Falle  
Zutreffendes bitte ankreuzen), diese Erfindung

☒ wurde angemeldet am 21 Oktober 1999  
unter der US-Anmeldenummer \_\_\_\_\_  
und wurde am \_\_\_\_\_ geändert (falls zutreffend)  
oder  
unter der PCT internationalen Anmeldungsnummer  
PCT/CH99/00498  
und wurde am 18 Oktober 2000 geändert (falls  
zutreffend).

Ich bestätige hiermit, daß ich den Inhalt der oben angegebene Paten-  
tanmeldung, einschließlich der Ansprüche, die eventuell durch einen  
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Ich erkenne meine Pflicht zur Offenbarung jeglicher Informationen  
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Ich beanspruche hiermit ausländische Prioritätsvorteile gemäß Title  
35, US-Code, § 119 (a)-(d), bzw. § 365(b) aller unten aufgeführten  
Auslandsanmeldungen für Patente oder Erfinderurkunden, oder §  
365(a) aller PCT internationalen Anmeldungen, welche wenigstens  
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Anmeldungen angegeben, deren Anmeldetag dem der Anmeldung,  
für welche Priorität beansprucht wird, vorangeht.

### Prior Foreign Applications Frühere ausländische Anmeldungen

<u>2153/98</u>	<u>Switzerland</u>
(Number)	(Country)
(Nummer)	(Land)
_____	_____
(Number)	(Country)
(Nummer)	(Land)

<u>26 October 1998</u>
(Day/Month/Year Filed)
(Tag/Monat/Jahr der Anmeldung)
_____
(Day/Month/Year Filed)
(Tag/Monat/Jahr der Anmeldung)

### Priority Claimed Prioritätsanspruch

<input checked="" type="checkbox"/>	<input type="checkbox"/>
Yes	No
Ja	Nein
<input type="checkbox"/>	<input type="checkbox"/>
Yes	No
Ja	Nein

☐ Zusätzliche einstweilige Anmeldungsnummern sind im  
Prioritätsanhang aufgeführt.

☐ Additional foreign application numbers are listed  
on a supplemental priority sheet attached hereto.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated  
below next to my name.

I believe I am the original, first and sole inventor (if only one  
name is listed below) or an original, first and joint inventor (if  
plural names are listed below) of the subject matter which is  
claimed and for which a patent is sought on the invention entitled

DEVICE FOR ENTERING VALUES USING A DISPLAY  
SCREEN

the specification of which is attached hereto unless the following  
box is checked:

☒ was filed on 21 October 1999 as  
United States Application Number \_\_\_\_\_  
and was amended on \_\_\_\_\_ (if applicable)  
or,

PCT International Application Number PCT/CH99/00498  
and was amended on 18 October 2000 (if applicable).

I hereby state that I have reviewed and understand the contents of  
the above identified specification, including the claims, as  
amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material  
to patentability as defined in Title 37, Code of Federal  
Regulations, §1.56.

I hereby claim foreign priority under Title 35, United States Code  
§119 (a-d) or §365(b) of any foreign application(s) for patent or  
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application which designated at least one country other than the  
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checking the "No" box, any foreign application for patent or  
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priority is claimed:

## German Language Utility or Design Patent Application Declaration

Ich beanspruche hiermit Prioritätsvorteile unter Title 35, US-Code, § 119(e) aller US-Hilfsanmeldungen wie unten aufgezählt.

(Application Number)  
(Aktenzeichen)

(Application Number)  
(Aktenzeichen)

(Application Number)  
(Aktenzeichen)

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(Application No.)  
(Aktenzeichen)

(Day/Month/Year Filed)  
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(Application No.)  
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(Day/Month/Year Filed)  
(Tag/Monat/Jahr eingereicht)

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(Day/Month/Year Filed)  
(Tag/Monat/Jahr der Anmeldung)

(Day/Month/Year Filed)  
(Tag/Monat/Jahr der Anmeldung)

(Day/Month/Year Filed)  
(Tag/Monat/Jahr der Anmeldung)

- ☐ Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s), or § 365(c) of any PCT international application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

(Status)  
(patentiert, schwebend, aufgegeben)  
(patented, pending, abandoned)

(Status)  
(patentiert, schwebend, aufgegeben)  
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- ☐ Additional U.S. or international application numbers are listed on a supplemental priority sheet attached hereto.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from either his foreign patent agent or corporate representative, if any, as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

# German Language Utility or Design Patent Application Declaration

**VERTRETUNGSVOLLMACHT:** Als benannter Erfinder beauftrage ich hiermit den sich mit der Kundennummer befassenden Patentanwalt (Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt und weise an, dass alle Korrespondenz mit dieser Kundennummer adressiert wird.

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Unterschrift des Erfinders

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